



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,747	08/01/2003	Douglas H. Rose	10031.000400	3850
31894 7590 03/13/2007 OKAMOTO & BENEDICTO, LLP P.O. BOX 641330 SAN JOSE, CA 95164			EXAMINER AHMED, SHAMIM	
			ART UNIT	PAPER NUMBER
			1765	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/13/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/632,747

Applicant(s)

ROSE ET AL.

Examiner

Shamim Ahmed

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-23 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) 19-23 and 28-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/19/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-23 and 28-32, in which species A is elected with traverse in the reply filed on 12/22/06 is acknowledged.
2. Applicant's comment is persuasive to join the claims 9 and 10 in the Species A and therefore, the claims 9 and 10 are included in the elected species A.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
4. Claims 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims 5,6,7 contains the trademark/trade name "Co-Bra Etch" and "Perma Etch". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade

Art Unit: 1765

name is used to identify/describe the etchant for etching the first layer and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1,3,8,11,13,15-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel et al (6,184,057) in view of Brasch (4,378,270).

Van Andel et al disclose a process for fabrication of solar cell, wherein a suitable substrate is copper or aluminum and alloys or multilayers thereof and disclose that preferred etchant for respective layers (col.3, lines 38-50).

Art Unit: 1765

Van Andel et al teach the formation of conductors for achieving interconnection to external circuitry, wherein the conductor can be made of tin-containing material (col.6, lines 43-58).

Van Andel et al remain silent the claimed etchant selectively etching the first metallic layer (copper) without substantially etching the topmost metallic layer comprising tin.

However, in a method of manufacturing electronic circuitry, Brasch teach a process of etching copper with a composition of hydrogen peroxide, sulfuric acid and phosphoric acid using tin or tin alloy (solder) resist (col.2, lines 38-42), wherein the composition has very minor effect (col.5, lines 9-15).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to employ Brasch's teaching into Van Andel et al's process for efficiently etching the copper layer without substantially etching the topmost metallic layer as suggested by Brasch.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel et al (6,184,057) in view of Brasch (4,378,270) as applied above, and further in view of Wang (6,316,831).

Modified Van Andel et al discusses above in the paragraph 8 but fail to teach etching a second layer titanium-tungsten using an etchant comprising hydrogen peroxide.

Art Unit: 1765

However, Wang teach a process of manufacturing electronic device including solar cell (col.4, lines 26-38) including the step of forming titanium-tungsten layer during the manufacturing process and preferable etched the layer to form patterns using hydrogen peroxide containing etchant (col.9, lines 55-61).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to employ Wang's teaching into modified Van Andel et al's process for efficiently forming the solar cell device as conventional processing taught by Wang.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel et al (6,184,057) in view of Brasch (4,378,270) as applied above, and in view of Wang (6,316,831) and further in view of Wada et al (6,787,692).

Modified Van Andel et al discusses above in the paragraph 8 and also teach that the aluminum layer is etched with NaOH (col.3, lines 48-49).

Modified Van Andel et al fail to teach that the etchant is potassium hydroxide (KOH).

However, Wada et al teach a process of manufacturing solar cell including the step of forming rear electrode (11b) comprising aluminum layer (col.6, lines 60-65) and disclosing conventional etching the metallic layer with alkaline or acid solution particularly etching the aluminum containing layer with KOH or NaOH with a range of 1 to 10 weight percent (col.7, lines 17-36).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to employ Wada et al's conventional teaching into modified Van Andel et al's process for effectively etching the metal layer because both the NaOH and KOH are functionally equivalent as taught by Wada et al.

11. Claim 4-7,12,14,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel et al (6,184,057) in view of Brasch (4,378,270) as applied above, and further in view of Wada et al (6,787,692).

Modified Van Andel et al discusses above in the paragraph 8 but fail to teach etching the copper layer with claimed specific concentration.

However, Wada et al teach a process of manufacturing solar cell including the step of forming rear electrode (11b) comprising aluminum layer (col.6, lines 60-65) and disclosing conventional etching the metallic layer with alkaline or acid solution particularly etching the aluminum containing layer with KOH or NaOH with a range of 1 to 10 weight percent (col.7, lines 17-36).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to employ Wada et al's conventional teaching into modified Van Andel et al's process for effectively etching the metal layer, which will result less expensive process as conventionally known in the art as taught by Wada et al.

Conclusion

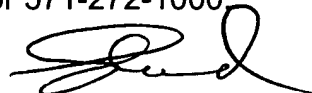
12. The prior art made of record, listed in PTO-892 and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 1765

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Shamim Ahmed
Primary Examiner
Art Unit 1765

SA
March 10, 2007